

SEQUENCE LISTING

<110> CHOI, YANG-DO
CHEONG, JONG-JOO
LEE, JONG-SEOB
SONG, JONG-TAE
SONG, SANG-IK
SEO, HAK-SOO
KOO, YEON-JONG

<120> GENES FOR S-ADENOSYL L-METHIONINE: JASMONIC ACID
CARBOXYL METHYLTRANSFERASE AND A METHOD FOR THE
DEVELOPMENT OF PATHOGEN- AND STRESS-RESISTANT PLANTS
USING THE GENES

<130> 058333/0112

<140> 10/049,187
<141> 2002-02-08

<150> PCT/KR01/00953
<151> 2001-06-05

<160> 8

<170> PatentIn Ver. 2.1

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<210> 2
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<212> DNA

<213> Arabidopsis thaliana

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<221> CDS

<222> (15)...(1181)

<223> open reading frame for JMT

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aac ggg gaa aca agt tat gcc aag aac tcc acc gct cag agc aac ata	98
Asn Gly Glu Thr Ser Tyr Ala Lys Asn Ser Thr Ala Gln Ser Asn Ile	
15 20 25	

ata tct cta ggc aga aga gta atg gac gag gcc ttg aag aag tta atg	146
Ile Ser Leu Gly Arg Arg Val Met Asp Glu Ala Leu Lys Lys Leu Met	
30 35 40	

atg agc aat tca gag att tcg agc att gga atc gcc gac tta ggc tgc	194
Met Ser Asn Ser Glu Ile Ser Ser Ile Gly Ile Ala Asp Leu Gly Cys	
45 50 55 60	

tcc tcc ggt ccg aac agt ctc ttg tcc atc tcc aac ata gtt gac acg	242
Ser Ser Gly Pro Asn Ser Leu Leu Ser Ile Ser Asn Ile Val Asp Thr	
65 70 75	

atc cac aac ttg tgt cct gac ctc gac cgt cca gtc cct gag ctc aga	290
Ile His Asn Leu Cys Pro Asp Leu Asp Arg Pro Val Pro Glu Leu Arg	
80 85 90	

gtc tct ctc aac gac ctc cct agc aat gac ttc aac tac ata tgt gct	338
Val Ser Leu Asn Asp Leu Pro Ser Asn Asp Phe Asn Tyr Ile Cys Ala	
95 100 105	

tct ttg cca gag ttt tac gac cgg gtt aat aat aac aag gag ggt tta	386
Ser Leu Pro Glu Phe Tyr Asp Arg Val Asn Asn Lys Glu Gly Leu	
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ggg ttc ggt cgt gga gga gaa tcg tgt ttt gtg tcg gcc gtc cca	434
Gly Phe Gly Arg Gly Gly Glu Ser Cys Phe Val Ser Ala Val Pro	
125 130 135 140	

ggt tcg ttc tac gga cgt ttg ttt cct cgc cgg agc ctt cac ttt gtg	482
Gly Ser Phe Tyr Gly Arg Leu Phe Pro Arg Arg Ser Leu His Phe Val	
145 150 155	

cat tct tct tct agt tta cat tgg ttg tct cag gtt cca tgt cgt gag	530
His Ser Ser Ser Leu His Trp Leu Ser Gln Val Pro Cys Arg Glu	
160 165 170	

gcg gag aag gaa gac agg aca ata aca gct gat tta gaa aac atg ggg	578
Ala Glu Lys Glu Asp Arg Thr Ile Thr Ala Asp Leu Glu Asn Met Gly	
175 180 185	

aaa ata tac ata tca aag aca agt cct aag agt gca cat aaa gct tat	626
Lys Ile Tyr Ile Ser Lys Thr Ser Pro Lys Ser Ala His Lys Ala Tyr	
190 195 200	
gct ctt caa ttc caa act gat ttc ttg gtt ttt ttg agg tca cga tct	674
Ala Leu Gln Phe Gln Thr Asp Phe Leu Val Phe Leu Arg Ser Arg Ser	
205 210 215 220	
gag gag ttg gtc ccg gga ggc cga atg gtt tta tcg ttc ctt ggt aga	722
Glu Glu Leu Val Pro Gly Gly Arg Met Val Leu Ser Phe Leu Gly Arg	
225 230 235	
aga tca ctg gat ccc aca acc gaa gag agt tgc tat caa tgg gaa ctc	770
Arg Ser Leu Asp Pro Thr Thr Glu Glu Ser Cys Tyr Gln Trp Glu Leu	
240 245 250	
cta gct caa gct ctt atg tcc atg gcc aaa gag ggt atc atc gag gaa	818
Leu Ala Gln Ala Leu Met Ser Met Ala Lys Glu Gly Ile Ile Glu Glu	
255 260 265	
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Glu Lys Ile Asp Ala Phe Asn Ala Pro Tyr Tyr Ala Ala Ser Ser Glu	
270 275 280	
gag ttg aaa atg gtg ata gag aaa gaa ggg tca ttt tcg atc gat agg	914
Glu Leu Lys Met Val Ile Glu Lys Glu Gly Ser Phe Ser Ile Asp Arg	
285 290 295 300	
ctt gag ata agt ccg att gat tgg gaa ggt ggg agt atc agt gag gag	962
Leu Glu Ile Ser Pro Ile Asp Trp Glu Gly Ser Ile Ser Glu Glu	
305 310 315	
agt tat gac ctt gca ata agg tcc aaa ccc gaa gcc cta gct agt ggc	1010
Ser Tyr Asp Leu Ala Ile Arg Ser Lys Pro Glu Ala Leu Ala Ser Gly	
320 325 330	
cga aga gtg tct aat acc ata aga gct gtg gtc gag ccg atg cta gaa	1058
Arg Arg Val Ser Asn Thr Ile Arg Ala Val Val Glu Pro Met Leu Glu	
335 340 345	
cct act ttc ggt gaa aat gtg atg gac gag ctt ttt gaa agg tat gca	1106
Pro Thr Phe Gly Glu Asn Val Met Asp Glu Leu Phe Glu Arg Tyr Ala	
350 355 360	
aag atc gtg gga gag tac ttc tat gta agc tcg cca cga tac gct att	1154
Lys Ile Val Gly Glu Tyr Phe Tyr Val Ser Ser Pro Arg Tyr Ala Ile	
365 370 375 380	
gtt att ctt tcg ctc gtt aga acc ggt tgatcggtt ataacatatg	1201
Val Ile Leu Ser Leu Val Arg Thr Gly	
385	
ccaatataca tgtctttggg cctacaatga catgatttg tagtttcta atcaagcata	1261
tgtaatataa ttgcgttcga gaataaaata ataaaataaa gtgtgtatgtt acggtagacc	1321
ctttttttt tttcttcatt tacggtagac ctatagtatt aaaacaaata gaatcagctg	1381

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 <212> PRT
 <213> Arabidopsis thaliana

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 Ser Tyr Ala Lys Asn Ser Thr Ala Gln Ser Asn Ile Ile Ser Leu Gly
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 Arg Arg Val Met Asp Glu Ala Leu Lys Lys Leu Met Met Ser Asn Ser
 35 40 45
 Glu Ile Ser Ser Ile Gly Ile Ala Asp Leu Gly Cys Ser Ser Gly Pro
 50 55 60
 Asn Ser Leu Leu Ser Ile Ser Asn Ile Val Asp Thr Ile His Asn Leu
 65 70 75 80
 Cys Pro Asp Leu Asp Arg Pro Val Pro Glu Leu Arg Val Ser Leu Asn
 85 90 95
 Asp Leu Pro Ser Asn Asp Phe Asn Tyr Ile Cys Ala Ser Leu Pro Glu
 100 105 110
 Phe Tyr Asp Arg Val Asn Asn Asn Lys Glu Gly Leu Gly Phe Gly Arg
 115 120 125
 Gly Gly Gly Glu Ser Cys Phe Val Ser Ala Val Pro Gly Ser Phe Tyr
 130 135 140
 Gly Arg Leu Phe Pro Arg Arg Ser Leu His Phe Val His Ser Ser Ser
 145 150 155 160
 Ser Leu His Trp Leu Ser Gln Val Pro Cys Arg Glu Ala Glu Lys Glu
 165 170 175
 Asp Arg Thr Ile Thr Ala Asp Leu Glu Asn Met Gly Lys Ile Tyr Ile
 180 185 190
 Ser Lys Thr Ser Pro Lys Ser Ala His Lys Ala Tyr Ala Leu Gln Phe
 195 200 205
 Gln Thr Asp Phe Leu Val Phe Leu Arg Ser Arg Ser Glu Glu Leu Val
 210 215 220
 Pro Gly Gly Arg Met Val Leu Ser Phe Leu Gly Arg Arg Ser Leu Asp
 225 230 235 240
 Pro Thr Thr Glu Glu Ser Cys Tyr Gln Trp Glu Leu Leu Ala Gln Ala
 245 250 255

Leu Met Ser Met Ala Lys Glu Gly Ile Ile Glu Glu Glu Lys Ile Asp
 260 265 270

Ala Phe Asn Ala Pro Tyr Tyr Ala Ala Ser Ser Glu Glu Leu Lys Met
 275 280 285

Val Ile Glu Lys Glu Gly Ser Phe Ser Ile Asp Arg Leu Glu Ile Ser
 290 295 300

Pro Ile Asp Trp Glu Gly Gly Ser Ile Ser Glu Glu Ser Tyr Asp Leu
 305 310 315 320

Ala Ile Arg Ser Lys Pro Glu Ala Leu Ala Ser Gly Arg Arg Val Ser
 325 330 335

Asn Thr Ile Arg Ala Val Val Glu Pro Met Leu Glu Pro Thr Phe Gly
 340 345 350

Glu Asn Val Met Asp Glu Leu Phe Glu Arg Tyr Ala Lys Ile Val Gly
 355 360 365

Glu Tyr Phe Tyr Val Ser Ser Pro Arg Tyr Ala Ile Val Ile Leu Ser
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Leu Val Arg Thr Gly
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<210> 4

<211> 30

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: 5' primer for
 PCR of JMT gene

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<210> 5

<211> 30

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: 3' primer for
 PCR of JMT gene

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<210> 6

<211> 359

<212> PRT

<213> Clarkia breweri

<400> 6

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Lys	Pro	Ile	Thr	Glu	Ala	Ala	Ile	Thr	Ala	Leu	Tyr	Ser	Gly	Asp	Thr
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Val	Thr	Thr	Arg	Leu	Ala	Ile	Ala	Asp	Leu	Gly	Cys	Ser	Ser	Gly	Pro
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Asn	Ala	Leu	Phe	Ala	Val	Thr	Glu	Leu	Ile	Lys	Thr	Val	Glu	Glu	Leu
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Arg	Lys	Lys	Met	Gly	Arg	Glu	Asn	Ser	Pro	Glu	Tyr	Gln	Ile	Phe	Leu
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Asn	Asp	Leu	Pro	Gly	Asn	Asp	Phe	Asn	Ala	Ile	Phe	Arg	Ser	Leu	Pro
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Ile	Glu	Asn	Asp	Val	Asp	Gly	Val	Cys	Phe	Ile	Asn	Gly	Val	Pro	Gly
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Ser	Phe	Tyr	Gly	Arg	Leu	Phe	Pro	Arg	Asn	Thr	Leu	His	Phe	Ile	His
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Ser	Ser	Tyr	Ser	Leu	Met	Trp	Leu	Ser	Gln	Val	Pro	Ile	Gly	Ile	Glu
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Ser	Asn	Lys	Gly	Asn	Ile	Tyr	Met	Ala	Asn	Thr	Cys	Pro	Gln	Ser	Val
					165			170			175				

Leu	Asn	Ala	Tyr	Tyr	Lys	Gln	Phe	Gln	Glu	Asp	His	Ala	Leu	Phe	Leu
					180		185			190					

Arg	Cys	Arg	Ala	Gln	Glu	Val	Val	Pro	Gly	Gly	Arg	Met	Val	Leu	Thr
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Ile	Leu	Gly	Arg	Arg	Ser	Glu	Asp	Arg	Ala	Ser	Thr	Glu	Cys	Cys	Leu
					210		215			220					

Ile	Trp	Gln	Leu	Leu	Ala	Met	Ala	Leu	Asn	Gln	Met	Val	Ser	Glu	Gly
					225		230		235			240			

Leu	Ile	Glu	Glu	Glu	Lys	Met	Asp	Lys	Phe	Asn	Ile	Pro	Gln	Tyr	Thr
					245		250			255					

Pro	Ser	Pro	Thr	Glu	Val	Glu	Ala	Glu	Ile	Leu	Lys	Glu	Gly	Ser	Phe
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Leu	Ile	Asp	His	Ile	Glu	Ala	Ser	Glu	Ile	Tyr	Trp	Ser	Ser	Cys	Thr
					275		280			285					

Lys Asp Gly Asp Gly Gly Ser Val Glu Glu Glu Gly Tyr Asn Val
 290 295 300
 Ala Arg Cys Met Arg Ala Val Ala Glu Pro Leu Leu Leu Asp His Phe
 305 310 315 320
 Gly Glu Ala Ile Ile Glu Asp Val Phe His Arg Tyr Lys Leu Leu Ile
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 340 345 350
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<210> 7

<211> 48

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
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<221> CDS

<222> (1)..(48)

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<210> 8

<211> 16

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
peptide

<400> 8

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